

AMENDMENTS TO THE CLAIMS

Please amend the claims as follows.

1. (Currently amended) A method for producing a replication master (10) having a surface with low roughness, comprising the steps of:

forming said master (10) such as to have a desired external surface shape which at least partially corresponds to a counterform of a surface of an object (18, 20) to be produced by replication;

treating said external surface of said master (10) to obtain a predetermined surface roughness value; and

coating at least a part of said master (10) with a smoothening layer (16),
~~characterized in that wherein~~ said smoothening layer (16) is made of a soluble material, ~~in particular a soluble polymer material, for example a PMMA photoresist.~~

2. (Currently amended) The method according to claim 1, ~~characterized in that wherein~~ said smoothening layer (16) is applied by dip-coating or spin-coating said master (10) with a liquid smoothening material and hardening said smoothening material.

3. (Currently amended) The method according to claim 1-~~or 2~~, ~~characterized in that which~~ it furthermore comprises the step of coating at least a part of said master (10) with a release layer.

4. (Currently amended) The method according to claim 3, ~~characterized in that wherein~~ said release layer is made of a soluble material, ~~in particular a soluble polymer material, for example a PMMA photoresist.~~

5. (Currently amended) The method according to ~~any of the preceding claims~~ claim 1, ~~characterized in that which~~ it furthermore comprises the step of coating at least one additional smoothening layer on top of or under said soluble smoothening layer (16).

6. (Currently amended) The method according to claim 5, ~~characterized in that wherein~~ at least one of said additional smoothening layers is made of a non-soluble material.

7. (Currently amended) The method according to claim 5 ~~or 6~~, characterized in that which it furthermore comprises the step of coating a thin spacer layer, preferably a thin metallic spacer layer, between at least two adjacent smoothening layers.

8. (Currently amended) A replication method for producing a smooth object (18, 20) having a low surface roughness, comprising the steps of:
producing a replication master (10) by a method according to ~~any of the proceeding claims~~ claim 1 or claim 3;
coating at least a part of said master (10) with an object material such that the surface of said object (18, 20) corresponds to a counterform of said master (10); and
releasing said object (18, 20) from said master (10).

9. (Currently amended) The method according to claim 8, characterized in that wherein said releasing step comprises dissolving at least one of said smoothening layer (16) and said release layer on top of said master (10) by a solvent.

10. (Currently amended) The method according to claim 8-~~or 9~~, characterized in that which it furthermore comprises the step of providing glue (20) to at least one of said object (18, 20) and/or to an object support (12) and glueing them together before executing said releasing step.

11. (Currently amended) The method according to claim 10, characterized in that wherein the amount of said glue (20) is chosen such as to fill gaps between said object (18, 20) and said object support (12).

12. (Currently amended) The method according to ~~any of claims 8 to 11~~, characterized in that wherein said object (18) is an optical device (18), e.g. a reflection or transmission monolayer, bilayer or multilayer.

13. (Currently amended) The method according to claim 12, characterized in that which it furthermore comprises the step of characterizing said optical device (18) on top of said master (10) before executing said releasing step.

14. (Currently amended) The method according to claim 13, ~~characterized in that wherein~~ said characterization step comprises performing a profilometry or reflectometry measurement of said optical device (18).

15. (Currently amended) The method according to ~~any of claims 8 to 11, characterized in that wherein~~ said object (20) is a substrate (20a) for an optical device (18).

16. (Currently amended) The method according to claim 15 ~~when dependent on and~~ claim 10, ~~characterized in that wherein~~ said object material and the material of said glue (20) are identical.

17. (Currently amended) The method according to claim 16, ~~characterized in that wherein~~ said object material and said glue (20) comprise epoxy resin.

18. (Currently amended) The method according to ~~any of claims 15 to 17, characterized in that which~~ it furthermore comprises the step of coating at least a part of said master (10) with a protection layer on top of said smoothening layer (16) or release layer before applying said object material.

19. (Currently amended) A replication master (10) for producing a smooth object (18, 20) having a low surface roughness, said master (10) having an external surface shape which at least partially corresponds to a counterform of a surface of said object (18, 20), wherein at least a part of said master (10) is coated with a smoothening layer (16), ~~characterized in that wherein~~ said smoothening layer (16) is made of a soluble material, ~~in particular a soluble polymer material, for example a PMMA photoresist.~~

20. (Currently amended) The replication master (10) according to claim 19, ~~characterized in that which~~ it is furthermore at least partially coated with a release layer.

21. (Currently amended) The replication master (10) according to claim 20, ~~characterized in that wherein~~ said release layer is made of a soluble material, ~~in particular a soluble polymer material, for example a PMMA photoresist.~~

22. (New) The method according to claim 1, wherein said soluble material is a soluble polymer material.

23. (New) The method according to claim 22, wherein said soluble polymer material is a PMMA photoresist.

24. (New) The method according to claim 4, wherein said release layer is made of a soluble polymer material.

25. (New) The method according to claim 24, wherein said release layer is made of a PMMA photoresist.

26. (New) The replication master according to claim 19, wherein said soluble material is a soluble polymer material.

27. (New) The replication master according to claim 26, wherein said soluble polymer material is a PMMA photoresist.

28. (New) The replication master (10) according to claim 21, wherein said release layer is made of a soluble polymer material.

29. (New) The replication master (10) according to claim 28, wherein said release layer is made of a PMMA photoresist.